weight, and chemical stability.

DISCLOSURE OF THE INVENTION

It is a first object of the present invention to provide a laminate (I) having excellent heat resistance, stiffness and adhesion to another material.

It is a second object of the present invention to provide a laminate (II) which includes an adherend layer (C) firmly bonded to the surface of the adhesive layer (B) of the laminate (I) and has excellent heat resistance and stiffness.

It is a third object of the present invention to provide a laminate (III) which includes an organic protective layer (D) and layer (E) to be treated on the surface of the base layer (A) of the laminate (II).

It is a fourth object of the present invention to provide a process for manufacturing a laminate (V) comprising the organic protective layer (D) and layer (E') to be treated by treating the layer (E) to be treated of the laminate (III).

Means for Solving the Problems

The present invention is a laminate (I) comprising a base layer (A) and an adhesive layer B formed on one side or both sides of the layer A, wherein

the layer A is a film made of (A-1) a wholly aromatic polyimide (PI^{A-1}) having a glass transition point of 350° C or higher, or (A-2) a wholly aromatic polyamide (PA^{A-2}) having a glass transition point of 350° C or higher and having a linear thermal expansion coefficient of -10 ppm/° C to 10 ppm/° C; and

the layer B comprises (B-1) a wholly aromatic polyimide (PI^{B-1}) having a glass transition point of 180° C or higher and lower than 350° C, (B-2) a wholly aromatic polyamide (PA^{B-2}) having a glass transition point of 180° C or higher

and lower than 350° C, or (B-3) a resin composition (RC^{B-3}) comprising a wholly aromatic polyimide (PI^{B-3}) and a wholly

The present invention will be described in detail hereinunder.

<laminate (I)>

The laminate (I) of the present invention comprises a base layer (A) and an adhesive layer (B) which is formed on one side or both sides of the base layer (A).

The layer A is a film made of (A-1) a wholly aromatic polyimide (PI^{A-1}) having a glass transition temperature of 350° C or higher or (A-2) a wholly aromatic polyamide (PA^{A-2}) having a glass transition temperature of 350° C or higher, which has a linear thermal expansion coefficient of -10 ppm/° C to 10 ppm/° C.

The layer B comprises (B-1) a wholly aromatic polyimide (PI^{B-1}) having a glass transition point of 180° C or higher and lower than 350° C, (B-2) a wholly aromatic polyamide (PB^{B-2}) having a glass transition point of 180° C or higher and lower than 350° C, or (B-3) a resin composition (RC^{B-3}) comprising a wholly aromatic polyimide (PI^{B-3}) and a wholly aromatic polyamide (PA^{B-3}) having a glass transition point of 180° C or higher and lower than 350° C.

Preferably, the laminate (I) of the present invention has two crossing directions with a Young's modulus of more than 3 GPa in the plane. The laminate (I) may become unsatisfactory in terms of stiffness at a Young's modulus of 3GPa or less and may deteriorate in treatment step durability in various applications. This tendency becomes more marked as the laminate becomes thinner. Young's moduli in two crossing directions in the plane are preferably 5 GPa or more, more preferably 7 GPa or more.

The shape of the laminate (I) may be tape-like, label-like or any other shapes. The laminate (I) can have any one of the following structures:

(1) a structure that the layer A comprises PI^{A-1} and the layer B comprises PI^{B-1},

(2) a structure that the layer A comprises PI^{A-1} and the layer B comprises PA^{B-2},